

Southern Regional Research Laboratory
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To: Director and Laboratory Staff
From: Survey and Appraisal
Subject: SURVEY NOTES

FARM SITUATION AND GENERAL BUSINESS ACTIVITY

THE OUTLOOK FOR AGRICULTURAL PRICES AND INCOME IN 1950

Another year of fairly high demand for most farm products appears to be in prospect for 1950, but the downtrend in agricultural prices and income underway in 1949 is likely to continue through next year. Both prices received by farmers and cash receipts from farming for 1950 may average about 10 percent below this year. This would approximate the decline that has occurred in 1949 from the record levels in 1948. Meanwhile, farm operators' net income is likely to drop somewhat more than cash receipts since farm production costs and prices paid by farmers are expected to decline less than their cash receipts in 1950.

The Demand and Price Situation, BAE, October 1949, p. 1.

AVERAGE WHOLESALE PRICE INDEX FOR ALL COMMODITIES AND INDEX FOR TEXTILE PRODUCTS RISE DURING SEPTEMBER

The average wholesale price index for all commodities rose to 204.9 during September, as compared to 204.0 during August of this year and 224.9 during September 1948. Because of a substantial increase in the cotton goods index, the textile products index rose from 203.4 during August to 205.0 during September.

Table 1.- Average wholesale prices given as index numbers, United States,
for specified months, August 1939 = 100

	: September :	August :	July :	September :
	: 1949 :	: 1949 :	: 1949 :	: 1948 :
	: Index :	: Index :	: Index :	: Index :
ALL COMMODITIES.....	204.9	204.0	204.8	224.9
Textile products.....	205.0	203.4	203.7	218.1
Clothing.....	177.7	177.7	177.7	182.3
Cotton goods.....	266.9	258.8	256.2	305.0
Hosiery and underwear.....	160.2	160.2	160.2	170.4
Rayon and nylon.....	138.9	138.9	138.9	146.7
Silk.....	111.1	111.1	111.1	104.7
Woolen and worsted goods.....	199.3	202.1	208.7	198.7
Other textile products.....	284.9	284.0	280.7	297.2
Farm products.....	267.4	266.1	272.5	311.3
Foods.....	241.1	239.0	240.0	278.1
Hides and leather products.....	195.4	193.1	191.8	202.3
Fuel and lighting materials.....	179.9	178.6	178.9	188.3
Metals and metal products.....	180.7	181.0	180.6	184.5
Building materials.....	211.4	210.0	210.9	227.7
Chemicals and allied products...	158.6	161.3	159.2	179.6
Housefurnishing goods.....	166.9	167.1	167.2	171.3
Miscellaneous.....	149.5	149.8	150.3	163.6

Computed from Average Wholesale Prices and Index Numbers of Individual Commodities
Bureau of Labor Statistics, U. S. Department of Labor.

COTTON LINT

CROP OF 15.5 MILLION BALES FORECAST

A 1949 cotton crop of 15,524,000 bales is the latest forecast by the Crop Reporting Board of the Bureau of Agricultural Economics, based on information as of November 1. This estimate, up 78,000 bales, or .5 percent from the October 1 forecast, indicates the largest crop since 1937 and the seventh largest on record. Production in 1948 was 14,868,000 bales and the 10-year average is 11,306,000 bales.

The Bureau of the Census reports 11,693,204 bales ginned from the crop of 1949 prior to November 14, compared with 11,678,631 bales for 1948 and 9,270,860 bales for 1947.

Cotton Production, BAE, November 8, 1949, p. 1.

SECRETARY PROCLAIMS MARKETING QUOTAS ON 1950 COTTON CROP

According to a report by the Production and Marketing Administration, released on October 13, 1949, the Secretary of Agriculture proclaimed a national marketing quota of 11,733,750 bales (standard bales of 500 pounds gross weight) for the 1950 cotton crop and announced a national acreage allotment of 21,000,000 acres. At the same time he announced a national referendum to be held December 15, 1949, in which farmers will vote for or against the marketing quota.

USDA Press Release "Secretary Proclaims Marketing Quotas on 1950 Cotton Crop," Production and Marketing Adm., October 13, 1949.

MILL MARGINS AND FABRIC PRICES UP; COTTON AND RAYON PRICES STABLE

Mill margins and fabric prices for 17 constructions continued to increase during October, but were still below those of October, 1948. The delivered-at-mill price for cotton remained around the 31.15 cent level during October and was about the same on November 17, while equivalent prices for viscose and acetate staple fiber for the same dates remained at 31.15 cents and 37.38 cents per pound respectively.

Table 2.- Prices of raw cotton, rayon staple and cotton fabrics, and cotton mill margins in cents.

	: Nov. 17 : : 1949 :	Oct. : : 1949 :	Sept. : : 1949 :	Aug. : : 1949 :	Oct. : : 1948 :
Cotton, Middling 15/16"	:	:	:	:	:
delivered at mills, lb.....	31.16	31.15	31.74	33.19	32.77
Rayon, viscose staple	:	:	:	:	:
equivalent price 1/, lb.....	31.15	31.15	31.15	31.15	32.93
Rayon, acetate staple	:	:	:	:	:
equivalent price 1/, lb.....	37.38	37.38	37.38	37.38	42.72
Cotton fabrics, average 17 constructions	:	:	:	:	:
Price for cloth from 1 lb. of cotton 2/.	-	65.52	64.48	61.38	68.32
Mill margins 3/.....	-	36.08	34.70	30.61	37.55
Sheeting, 37" 4.00, yd. 4/.....	16.25	16.25	16.00	15.50	16.50
Osnaburg, 36" 2.35, yd. 5/.....	20.63	20.00	20.00	19.05	21.25
Printcloth, 38-1/2" 5.35, yd. 4/.....	15.00	15.00	15.00	13.25	15.75

- 1/ Cost to mill of same amount of usable fiber as supplied by one pound of cotton (rayon price x.89).
- 2/ Price of approximate quantity of cloth obtainable from a pound of cotton with adjustments for saleable waste (Cotton Branch, P.M.A.).
- 3/ Difference between cloth prices and price (10-market average) of cotton assumed to be used in each kind of cloth (Cotton Branch, P.M.A.).
- 4/ From Daily Mill Stock Reporter.
- 5/ From Daily News Record.

COTTON CONSUMPTION AND STOCKS RISE IN OCTOBER

Cotton consumption for October was 726 thousand bales, as compared to 710 thousand bales for September of this year and 696 thousand bales for October 1948. Stocks for October 1949 were 9.5 million bales, or 2.6 million bales higher than September, 1949 and .7 million bales larger than October 1948. Spindle activity was up in October of this year.

Table 3.- Cotton consumption and stocks, and spindle hours in cotton mills

	: October	: September	: August	: October
	: 1949	: 1949	: 1949	: 1948
Consumption, bales.....	725,602	709,958	664,133	695,887
On hand, 1000 bales.....	9,496	6,882	4,634	8,794
Active spindle hours, billions..	9.0	8.7	8.3	8.9
Spindle activity, percent of				
80-hour capacity 1/.....	123.3	115.2	102.5	120.0

1/ Includes activity on fibers other than cotton, totaling 0.3 to 0.6 billion spindle hours for each month shown.

From Census reports.

COTTON TEXTILE INDUSTRY AND EQUIPMENT

MFERS. SKEPTICAL OF LINT CLEANERS USED IN GINNING

Spinners of fine yarns and weavers of fine fabrics are skeptical of the new lint cleaners developed by the ginning industry, and do not like the rough appearance of lint cotton processed at gins equipped with the new saw-type lint cleaner, according to the Division of Technical Service of the American Cotton Manufacturers Institute, Inc. They claim that the lint resembles reginned cotton and gives yarns that are lower in grade and considerably higher in neppiness. This is also true of the fine fabrics woven from the yarn spun from these cottons, they add.

Two large cotton spinning and weaving plants in the south recently conducted tests to determine the waste content, the number of neps in the card web and the yarn appearance, grades and yarn skein strengths for cottons ginned with the saw-type lint cleaner compared with cottons processed through a regular gin and a reginning plant. Test results from both of these mills indicate that the cottons ginned with the lint cleaner show a higher nep content at the card web and more neps in the finished yarn than the cottons ginned without the cleaner. However, there was no noticeable depreciation in yarn skein strength.

In an effort to further study the problem of lint cleaners, cottons that were grown in the same field and of the same variety, a portion of which was hand-picked and the other portion machine-picked, have been obtained from the South Carolina Experiment Station. These two samples of cotton have been ginned with and without the new lint cleaner. This ginning procedure gives four samples of cotton for processing into yarns and fabrics which, in turn, will be bleached and dyed. The results of this test are expected to give the industry an indication of what to expect from cotton that is mechanically harvested and ginned with the new saw-type lint cleaners.

TWO-FOR-ONE TWISTER DESIGNED FOR TIRE CORD

A new two-for-one twister is said to reduce the tire-cord twisting operation to one step with savings in time, space and cost. The machine is manufactured by a new textile-machinery manufacturer, Howe Machinery Co., Inc., 30 Gregory Ave., Passaic, N. J. The twister is said to be adaptable to rayon, glass, nylon and cotton. The working model of the machine produces 1650-denier tire cord at 1.6 pounds per hour, and 2200-denier tire cord at 2.68 pound per hour, the manufacturer states. Cord is produced on 10-pound metal spools.

Textile World, October 1949, p. 232.

COTTON PRODUCTS

BAGS: BAG INDUSTRY UNABLE TO FILL FIRST QUARTER OSNABURG NEEDS

Bag manufacturers have sought unsuccessfully to place orders for enough osnaburg to fill their needs in the first quarter of 1950, Worth street sources revealed. A growing scarcity of burlaps and the approach of the busiest part of the fertilizer bag season combined to bring about this market condition.

Although looms are being shifted over to osnaburg production from twill numbers at some mills, the amount of yardage these additional looms can weave will fall far short of actual needs, particularly if the crisis in burlap continues for several weeks.

There were said to be bids for several million yards of 3.65-yard and 2.95-yard osnaburgs going the rounds with no takers for delivery between January and March, because the goods could not be obtained from the selling houses. Most producers are sold completely through the end of March in all the osnaburgs and ready to move into the second quarter.

The 3.65-yard goods were priced at 14-3/4 cents, and the 2.25-yard osnaburgs at 16-3/4 cents, while 2.11-yard cloth, for which demand is heavy, has moved to 22-1/2 cents.

Journal of Commerce, November 4, 1949, p.10.

BAGS: MORE FABRIC USED IN BAG MANUFACTURING DURING FIRST EIGHT MONTHS OF 1949

According to George A. Hauser, chairman, Cotton Bag Market Committee, figures have just been collected from the bag manufacturers for the first eight months of 1949 which indicate the following yardage increases over the same period in 1948: (1) eighty-four percent increase in cut-up of all class C sheetings; (2) thirty percent increase in cut-up of all prints; (3) sixteen percent increase in cut-up of all class B sheetings; (4) eight percent increase in cut-up of all cotton bag fabrics; (5) twenty-five percent increase in cut-up of all flour bag cloth 37 inch, 4.00 yd.; (6) ten percent increase in cut-up of one major feed bag cloth 40 inch, 3.75 yd.; and (7) thirteen percent increase in numbers of looms making B sheeting from October 1, 1948 to July 2, 1949.

In spite of these solid yardage gains, a warning note is evident in connection with the recent changes in price levels of both bag fabrics and bags. A bag salvage program, rapidly developed country-wide to offset the price differential between paper and cotton bags as it existed last spring, is now taxed to the limit with a further widening differential as prices for cotton bags materials rise and those for paper drop.

Journal of Commerce, October 24, 1949, p. 1A.

BAGS: FABRIC BAG PRICES UP DURING NOVEMBER

On November 15, cotton and burlap flour bags sold for \$237.75 and \$223.05 per thousand, or \$3.00 and \$6.10 per thousand higher, respectively, than the October 15 quotations. The price of once-used flour bags rose to \$140.00 per thousand for cotton bags and \$110.00 per thousand for burlap bags. The net cost (based on the difference between prices for new and once-used bags) to use new cotton flour bags was \$97.75 per thousand; burlap, \$113.05 per thousand; and paper, \$96.20 per thousand.

Table 4.- Mid-month prices of 100-pound flour bags

(Dollars per thousand)

	: November	: October	: September:	: November
	: 1949	: 1949	: 1949	: 1948
Prices, new, St. Louis 1/	:	:	:	:
Cotton.....	237.75	234.75	232.00	240.00
Burlap.....	223.05	216.95	228.30	240.85
Paper.....	98.70	98.70	98.70	114.05
Prices, second-hand, New York.....	:	:	:	:
Cotton, once-used 2/.....	140.00	135.00	125.00	140.00
Cotton, bakery run 3/.....	95.00	75.00	90.00	120.00
Burlap, once-used 2/.....	110.00	100.00	105.00	4/
Burlap, bakery run 3/.....	95.00	95.00	102.50	110.00
Paper, bakery run 3/.....	2.50	3.33	2.50	10.00
Difference	:	:	:	:
Cotton, new minus once-used.....	97.75	99.75	107.00	100.00
Cotton, new minus bakery run.....	142.75	159.75	142.00	120.00
Burlap, new minus once-used.....	113.05	116.95	123.30	4/
Burlap, new minus bakery run.....	128.05	121.95	125.80	130.85
Paper, new minus bakery run.....	96.20	95.37	96.20	104.05

1/ Cotton, 37" 4.00 yd. sheeting cut 43" unprinted; burlap, 36" ~~10.02~~ cut 43" unprinted; paper, 18 x 4-1/2 x 36-3/4" unprinted; all l.c.l. shipments. No allowance made for quantity or cash discounts. From a large bag manufacturer.

2/ From a large second-hand bag dealer.

3/ From Daily Mill Stock Reporter.

4/ No data available.

COTTON FABRIC: BETTER, FASTER BLEACH SEEN BY NEW STEP

According to a report by L. P. Seyb and J. L. Foster of Diamond Alkali Co., Painesville, Ohio, cotton goods can be bleached rapidly, probably in two hours on a continuous basis, and to a better quality than usual, through use of a new procedure in which sodium hypochlorite and caustic soda are still the essential chemicals.

Singed gray goods are treated with a sodium hypochlorite solution of controlled alkalinity, instead of with an acid sour or an enzyme desizing agent, and then are steeped. This is followed by saturating the goods with 3 percent caustic soda and steaming in J-box equipment. If J-box equipment is not available, the fabric can be plaited into a kier and boiled with an aqueous caustic soda solution. This step is followed by another treatment with sodium hypochlorite solution of controlled alkalinity. When the alkalinity of each of the hypochlorite

treating steps is controlled to a pH between 8.0 and 9.0, the approximate amount of time required for each is one-half hour. The J-box steaming need be no longer than one hour; or if a kier is used, three hours boiling is sufficient. By so operating, a finished fabric is obtained having better whiteness and tensile strength than is usually obtained in commercial bleacheries using classical hypochlorite bleach methods, the report says. It is to be understood, however, that various rinsing and auxiliary steps accompany both the general commercial practice and the proposed process.

Daily News Record, October 17, 1949, p. 29.

COTTON FABRIC: SOILING STUDY SEEN BEST DIRECTED AT ELECTRIC PROPERTY

According to R. William P. Untermohlen, Jr. of the Permutit Corp., the most promising field for future research on soil resistance of cotton lies in a study of treatments which alter the electrical properties of the cloth. Various finishing agents and processes have a definite effect on the ease of soiling, and also on soil removal. A number of treatments tried have produced some resistance to soiling from water dispersions. However, some of these only make the soil more difficult to remove. Others which make soil removal easier also make soil acquisition easier. It appears that the best treatments for soil resistance are partial carboxymethylation anionic softeners, and vinyl resins bearing carboxy groups.

Daily News Record, October 17, 1949, p. 29.

COTTON FABRIC: CREASE RESISTANCE RISES AS STRENGTH VALUES DECLINE

According to a report, "Investigations of Anti-Crease Treatments for Cotton," by R. F. Nickerson, of Monsanto Chemical Co., wrinkle resistance developed on cottons treated with melamine formaldehyde varies inversely with breaking strength and tear values, over a wide range of applied solids, cure times, cure temperatures, and post-cure washing. Additional conclusions drawn as a result of the studies included: (1) Melamine-formaldehyde precondensate properly applied with acid liberating catalyst causes no apparent acid damage to cotton goods; (2) Deposition of unpolymerized melamine-formaldehyde precondensate has little effect on fabric properties; and (3) Simple polymerization of melamine-formaldehyde precondensate insolubilizes the resin and causes a small decrease in tear value, but does not alter strength or wrinkle resistance appreciably.

Anti-crease effects in cotton are produced in proportion as cellulose is cross linked through resin bridges. Cross linking requires anhydrous cure conditions and is favored by increases in resin, cure temperature, and catalyst activity. The cellulose-melamine resin bond is extremely resistant to alkali and is not broken by mercerizing caustic. Variations in cure conditions which alter the degree of cross-linking of cellulose with resin are probably the major cause of variations in the results obtained.

Daily News Record, October 17, 1949, p. 28.

NONWOVEN FABRIC: USED AS BACKING FOR VINYL RESIN-COATED FABRIC

According to Jules D. Lippman of the Textileather Corporation, Feltone—a vinyl resin-coated fabric with a non-woven cotton fabric as backing—is being used for headboards for Hollywood beds, and for hassocks, table tops, desk sets, luggage covering, automobile door panels, and quarter panels. At present, Feltone is being produced as a single type of non-woven fabric backing, with the applied film varying in thickness from .01 to .02 of an inch.

Journal of Commerce, October 28, 1949, p. 12.

TIRE FABRIC: PRICE OF COTTON TIRE FABRIC DROPS AGAIN

Cotton tire fabric prices declined about 1 to 1-1/2 cents per pound from October 1 to November 1, while rayon fabric prices remained substantially unchanged. On a square yard basis for passenger tire fabric, 12/4/2 cotton fabric sold at 54.6 to 55.5 cents, as compared to 49.8 cents for 1650/2 rayon fabric.

Table 5.- Prices of cotton and rayon tire fabric, November 1 and October 1, 1949

Fabric	Cord	Fabric weight per sq. yd.	Price per pound		Price per sq. yd.	
			Nov. 1	Oct. 1	Nov. 1	Oct. 1
			Cents	Cents	Cents	Cents
Passenger car tires						
Cotton fabric.....	12/4/2	.86	63.5-64.5	64.5-65.0	54.6-55.5	55.5-55.9
Cotton fabric.....	12/3/3	1/	64.5	66.0	-	-
Rayon fabric.....	1650/2	.81	61.5	61.5	49.8	49.8
Truck tires						
Rayon fabric.....	1100/2	.62	64.0	64.0	39.7	39.7
Rayon fabric.....	2200/2	.81	60.5	60.5	49.0	49.0

1/ Fabric weight per square yard for 12/3/3 not available, but will be added in future issue of Survey Notes.

Based on reports from independent rubber companies.

COMPETITIVE PRODUCTS

FIBERGLAS: USE OF NEW, LOW COST YARNS CUTS COST OF ELECTRICAL TAPES

Weavers of electrical insulation tapes have completed experimental production of the new, low-cost 150's Fiberglas yarns for most of the standard electrical tapes, according to J. H. Thomas of the Owens-Corning Fiberglas Corporation. These new tapes are designed to supplement the standard widely-used constructions now available. Engineering and production tests have been successfully completed by major electrical manufacturers, who are placing orders for tapes woven of the 150's yarns, with a resulting tape cost reduction of approximately 15 percent, according to Mr. Thomas.

Rayon and Synthetic Textiles, November 1949, p. 67.

GLASS FABRIC: CAN BE DYED, PRINTED

According to J. K. Park of the Owens-Corning Fiberglas Corp., it is now possible to dye or print glass fabrics commercially in any color. The resulting fabrics possess excellent hand and drape, are lightfast in excess of 100 hours in the Fade-ometer, can be washed or dry cleaned, and do not require ironing. Inability to color the glass fabrics satisfactorily has been a serious handicap in the past. The new process, Coronizing, is permanent and contributes to serviceability, life, and attractiveness. Mr. Park further states that the development of a process for coating glass fabrics with vinyl has opened up additional fields for the use of glass textiles, such as for awnings, canopies, upholstery and auto tops.

Daily News Record, November 1, 1949, p. 2.

NYLON: PRODUCTION

According to a trade estimate, production of nylon yarn is now about 70 million pounds per year. At the moment, 30 million pounds go into women's hosiery, 20 million pounds into warp-knit fabrics, 15 million pounds into woven goods, and 5 million pounds into tires. E. I. du Pont de Nemours & Co. has not made its

production figures public, as yet, but officials of the company say that additional poundage will be available before the end of 1950 as a result of increased facilities at Seaford, Del., and Chattanooga, Tenn.

Textile World, October 1949, p. 256

NYLON AND RAYON: YARN WITH NYLON CORE, RAYON WRAPPING PATENTED

A new yarn (patent No. 2,483,861, to Cohn, Hall, and Marx Co.) has a continuous nylon filament core completely surrounded by a spun rayon wrapper, in contrast to the twisted variety of composite yarns. Nylon and vinyon continuous filament yarn, and possibly other polyamide and thermoplastic filament yarns, could be employed for the core of this yarn. Although spun rayon fibers are preferred as the wrapping material, they may be blended with or replaced by fibers composed of cellulose acetate or other synthetic fibers or by cotton, wool, or other natural fibers. The new yarn uses a continuous nylon filament core of the order of 20 to 75 deniers, the wrapper yarn having staple lengths of 1-1/8 to 3 inches.

One of the features of the process lies in the method of setting the two elements in the yarn. An interlocking engagement between the core and the wrapper elements of the composite yarn, or a mechanical conformation between them is used. There is no bonding, fusing, or permanent adhesion of the several components relative to each other.

Journal of Commerce, October 18, 1949, p. 14.

RAYON: CONSUMPTION UP DURING OCTOBER

Total rayon consumption has increased each month since August. Rayon consumption was 100.4 million pounds during October of this year, as compared to 97.5 million pounds during September, 88.6 million pounds during August, and 93.7 million pounds during October 1948.

Table 6.- Rayon consumption by types, United States, for specified months
(Million pounds)

	October 1949	September 1949	August 1949	October 1948
CONSUMPTION, TOTAL.....	100.4	97.5	88.6	93.7
Filament yarn.....	76.2	74.8	69.2	71.8
Viscose.....	49.0	48.5	44.7	46.2
Acetate.....	27.2	26.3	24.5	25.6
Staple.....	24.2	22.7	19.4	21.9
Viscose.....	16.5	14.8	12.0	15.6
Acetate.....	7.7	7.9	7.4	6.3

From Rayon Organon.

RAYON: AMERICAN VISCOSE TO STRESS COMPLETE FILAMATIC PROCESS

Replacement of conventional spinning machinery with filamatic, or continuous, spinning machinery, rather than expansion of the number or size of its plants, will be the prime objective of American Viscose Corp.'s textile yarn program during the next four or five years. The chief advantage of the conventional process is speed; the yarn must be processed further before it can be used in fabrics. Continuous spinning machinery, while already used in the production of industrial filaments such as tire cord, is comparatively new in the production of textile yarns. Current plans call for the manufacture of satins and pigment taffetas, which show defects clearly, as the first step in evaluating the advantages and

disadvantages of the new process. Continued replacement will depend upon the outcome of these early operations.

Journal of Commerce, October 25, 1949, p. 12.

RAYON: ACETATE FABRICS SUCCESSFULLY VAT DYED

According to John M. Gessler, president of the Vat-Craft Corp., the first successful commercial runs of acetate fabrics in vat colors have taken place at the Shamrock Textile Processing Company, Paterson, N. J. This process involves application to the fabric of vat colors in specially prepared form, after which sensitizers and catalysts are added before the colors are developed photochemically. Uniformly level dyeing of viscose is claimed for the process; acetates can be dyed without saponification, and both fabrics receive superior fiber penetration. The machinery on which the fabrics are run is said to be capable of handling many types of natural and synthetic fabrics under controlled tension.

Southern Textile News, November 5, 1949, p. 13.

RAYON AND OTHER SYNTHETIC FIBERS: RAYON USE IN 1949 SEEN DROPPING 10 PERCENT

According to William H. Brown, secretary and treasurer of the American Viscose Corporation, it is expected that rayon consumption this year will be off a little more than 10 percent, cotton 15 percent, and wool 25 percent in comparison with 1948. Mr. Brown estimates that rayon still will account for more than 91 percent of man-made fibers. From "talk in the trade," he said it might be concluded that production of nylon in 1949 will be about 70 to 75 million pounds, or slightly more than 6 percent of man-made fibers. Production of Saran, made from a chemical resin manufactured by Dow Chemical Co., is in the range of 12 million pounds a year, or slightly more than 1 percent of man-made fibers. Other man-made fibers, consisting mainly of "Vicara" made by Virginia-Carolina Chemical Co. and "Vinyon" produced by American Viscose from resin made by Union Carbide & Carbon Corp., constitute in total less than one-half of 1 percent of man-made fibers.

Daily News Record, November 18, 1949, p. 21.

VINYON N: CARBIDE & CARBON TO ADD FACILITIES FOR STAPLE OUTPUT

New facilities for a substantial increase in the production of acrylonitrile-vinyl chloride staple (which was formerly called Vinyon N and is now called "dynel") at its South Charleston, W. Va., plant are being installed and will be in operation sometime in the second quarter of 1950, according to the Carbide & Carbon Chemical Corp. Yarn and staple previously made of this material by the company had been designated as "Vinyon N" to distinguish it from the other types of yarn and staple on the market known as "Vinyon." Adoption of the new name "dynel" makes this distinction more sharp. The staple fiber is being made in semi-commercial quantities now in 2, 3, 6, 12, and 24 denier, and 1-3/8, 1-1/2, 2, 2-1/2, 3-1/2, 4, and 6 inch lengths. It has been used experimentally in blankets, sweaters and socks. At present, it is available in developmental quantities. This fiber is priced at \$1.25 per pound.

Daily News Record, November 1, 1949, p. 2.

WOOL: CONSUMPTION PICKS UP IN AUGUST

Raw wool consumption rose to 39.8 million pounds during August, an increase of 45 percent over the July consumption. But reported consumption for 1949 so far is well below that of last year, for the use of raw wool on a scoured basis was 313.6 million pounds for the first eight months of 1949, as compared to 473.0 million pounds during January-August, 1948.

Table 7.- Consumption of wool of the sheep, scoured basis,
United States, for specified periods and months

(Million pounds)									
Apparel class				Carpet class, foreign					
Woolen:	Worsted:	Total		Woolen:	Worsted:	Total		Grand	
system:	system:			system:	system:			total	
:	:	:	:	:	:	:	:	:	:
Jan.-Aug., 1948 1/....	114.4	224.8	339.2	129.1	4.7	133.8		473.0	
Jan.-Aug., 1949 1/....	87.6	121.2	208.8	102.9	1.9	104.8		313.6	
March 3/.....	10.8	18.4	29.2	18.2	.4	18.6		47.8	
April 2/.....	8.6	11.4	20.0	12.7	.1	12.8		32.8	
May 2/.....	10.7	10.8	21.5	12.1	.2	12.3		33.8	
June 3/.....	13.6	15.3	28.9	12.9	.2	13.1		42.0	
July 2/.....	10.8	11.9	22.7	4.7	.1	4.8		27.5	
August 2/.....	12.8	16.4	29.2	10.4	.2	10.6		39.8	
:	:	:	:	:	:	:	:	:	:

1/ Total for 34 weeks.

2/ Total for 4 weeks.

3/ Total for 5 weeks.

Facts for Industry "Wool Manufactures," Bureau of
the Census.

WOOL: STRAIGHT, INSTEAD OF KNEE WIRE CLOTHING, SEEN CUTTING NEED FOR CARD
STRIPPING

A new straight wire clothing, Strip-O-Matic, increases production by the virtual elimination of card stripping, according to E. A. Snape, Jr., of the Benjamin Booth Co., Philadelphia. Several features of the new clothing are: (1) the use of a straight instead of a bent staple, (2) a plastic face foundation which is oil and waterproof, and (3) much more open spacing between staples, with fewer points a square inch, and a streamlining of the staples so that a greater length and narrower width is employed. The wire height above the foundation has been shortened, eliminating depth to which stock could penetrate in and around the teeth of the conventional card clothing. The straight teeth also aid the stripping action, while the open setting of the teeth, longitudinally, allows more unobstructed space for stock to pass through.

Mr. Snape further states that production time is gained and labor is saved through the use of Strip-O-Matic. On conventional machinery stripping must be done daily, whereas on the new clothing it would only be necessary about every two weeks.

"Strip-O-Matic" works effectively on all types of stocks, and under practically all types of operating conditions, it is claimed. Thus far, it has been tested on carpet, blanket, paper-maker felts, nylon, and fine wool stocks. In recent plant tests it was proved that in 120 hours of operation it produced only 1/15 of the amount of stripping waste than that usually left by the conventional card clothing.

Daily News Record, November 14, 1949, p. 41.

MOHAIR: EIGHT MONTH CONSUMPTION GREATER THAN LAST YEAR

Consumption of mohair for the first 8 months of 1949 was 8.6 million pounds, or about 2.5 million pounds greater than the amount used during January-August, 1948.

Table 8.- Consumption of mohair, scoured basis, United States, January-August, 1948 and 1949

	: January-August : 1949	: January-August : 1948	: Change since : last year
	: 1,000 : pounds	: 1,000 : pounds	: Percent
TOTAL.....	8,591	6,085	+ 41
Woolen system.....	3,299	817	+ 304
Worsted system.....	5,292	5,268	1/

1/ Less than 0.5 percent.

Facts for Industry, "Wool Manufactures," Bureau of the Census

PAPER: ST. REGIS GIVES BAG STATISTICS; RECENT DEVELOPMENTS IN MULTIWALL BAG MANUFACTURING EQUIPMENT AND BAG FILLING MACHINES

Production of multiwall bags in 1948 was 2.8 times that of 1939. The St. Regis Company increased its multiwall bag sales by 19.6 percent and its fertilizer bag sales by 20 percent over 1947. The company states that over half of the bakery flour was packaged in multiwall paper bags.

Relative to engineering developments resulting in improved multiwall bags, the Bag Engineering Division of St. Regis reports the following: (1) a new web press for printing multiwall bags, which permits a better quality of printing at higher speeds; (2) new high speed sewing machines for closing the ends of bags; and (3) a combination valving, sleeving and sewing machine, which simplifies the production of sleeve valve bags and substantially increases the output per operator. These machines were put in operation in the early part of 1949.

The Engineering and Machine Division of St. Regis, Oswego, N. Y., designs and manufactures the special machinery for filling, weighing and closing, as well as machinery for making multiwall bags. Production of the latter type of machinery in 1948 rose 37 percent over 1947.

In addition to the developments in the multiwall bag field, a significant improvement was made in the company's equipment for filling and closing consumers' packages, such as the 5 and 10 pound paper sugar pockets. By means of an automatic feeder, the equipment was operated at speeds 40 percent faster than were previously possible. This new feeder has been proved in service, with installations in leading sugar companies, and is now being manufactured in commercial quantities.

Annual Report of St. Regis Paper Co., Dec. 31, 1948, p. 15.

TEXTILE RESEARCH AND EDUCATION

FOUR PATENTS ISSUED ON WATER ABSORBENT, REPELLENT ARTICLES

The Patent Office has granted a series of four patents to Raymond B. Seymour and George M. Schroeder, Chattanooga, Tenn., for different processes for making moisture-absorbent and moisture-repellent articles. All four patents are assigned to Henry H. Frede Co., of Chattanooga.

The first patent, No. 2,486,803, is for a process of making a moisture-absorbent article suitable for toweling. The second, No. 2,486,804, is for a composition which produces a substantially water-insoluble coating when applied to a cellulosic textile material. The last two patents of the series, Nos. 2,486,805 and 2,486,806, are for methods of making diapers or similar sheetlike materials. One of these methods results in a material which is water-repellent on one side, the other in a material which is water-pervious on both sides.

Daily News Record, November 10, 1949, p. 19.

OILSEEDS AND RELATED PRODUCTS

MODERATE INCREASE IN FATS AND OILS PRODUCTION INDICATED

Production of fats and oils from domestic materials in the year beginning October 1949 is expected to exceed the new high of a year earlier, when the total was about 11.6 billion pounds, including the oil equivalent of exported soybeans, flaxseed, and peanuts for crushing. Indicated increases in the 1949-50 output of lard, greases, butter, and cottonseed oil will more than offset expected declines in production of soybean and peanut oils. Exports of fats and oils probably will be large again in 1949-50, although a decline from the record total of approximately 2.1 billion pounds a year earlier is likely. Fats and oils undoubtedly will remain among the preferred agricultural commodities for which foreign-held dollars are spent, but there may be some shift to feedstuffs, including oilseed meals, to support expanding livestock production.

The Fats and Oils Situation, October 24, 1949, p. 3.

OILSEEDS HARVEST LARGER THAN PREVIOUS FORECAST

Improvement in both yield and production is indicated in the most recent estimates for cottonseed, peanuts, soybeans and sweetpotatoes. Although no official estimate of cottonseed production will be made until final ginnings for the season are released, if the ratio of lint to cottonseed is the same as the average for the past five years, production will be 6,267 thousand tons. The crop of 1,846 million pounds of peanuts indicated by the November 1 appraisal is about 2 percent larger than the October estimate, but 21 percent less than the record production of 2,338 million pounds in 1948. Soybean production of 215 million bushels was indicated on November 1, an increase of about 2 percent over a month earlier, but still 2 percent less than the 220 million bushel crop of last year. The sweetpotato crop estimated at 52,284 thousand bushels, is slightly larger than the production estimated from pre-harvest indications, but is 18 percent below average. With most of the rice crop harvested in all areas except Texas, a record production of 87,491 thousand bushels is almost assured. Although about 2 million bushels below the forecast last month, this is 6 million bushels above the 1948 harvest.

Table 9.- Total production and yield per acre of selected crops, United States, for specified years and periods.

Crop	Unit	Production (millions)			Yield per acre		
		1949 ^{2/}	1948	Average 1938-47	1949 ^{2/}	1948	Average 1938-47
Cottonseed.....	ton:	6.2 ^{3/}	5.9	4.6	473.0 ^{4/}	514.0 ^{4/}	433.2 ^{4/}
Flaxseed.....	bu.:	41.2	52.5	30.1	8.8	11.1	9.2
Peanuts ^{1/}	lb.:	1,845.7	2,338.5	1,845.7	725.0	706.0	692.0
Rice.....	bu.:	87.5	81.2	62.9	48.8	46.6	46.6
Soybeans for beans:	bu.:	215.2	220.2	148.4	22.2	21.4	18.7
Sweetpotatoes....	bu.:	52.3	49.8	63.6	99.9	96.9	89.7

^{1/} Picked and threshed.

^{2/} Preliminary. For certain crops, figures are not based on current indications, but are carried forward from previous reports.

^{3/} Based on November crop forecast and the average ratio of lint to seed during the last five years.

^{4/} Pounds.

LARGEST WORLD COTTONSEED PRODUCTION SINCE 1940

World production of cottonseed for the 1949-50 season has been estimated at about 14 million tons by the Office of Foreign Agricultural Relations. About 5 percent higher than the 1948-49 crop of 13.3 million tons, this is the largest indicated production since 1940-41. The United States is expected to produce approximately 6.3 million tons, which would equal about 45 percent of the world total--the same as in 1948-49. During the 1935-39 period, cottonseed production in the United States accounted for about 36 percent of the world total.

The 1949 cottonseed price support program was amended on November 9 so as to make loans on cottonseed available on the basis of warehouse receipts issued by approved warehousemen.

Cottonseed Review, USDA, PMA, Nov. 17, 1949.

CASTOR OIL: SUCCESSFUL SUBSTITUTE FOR LINSEED OIL CLAIMED

A process whereby castor oil might be substituted for linseed oil in the manufacture of paints and varnishes has been evolved by the Central Research Laboratories in Hyderabad, India. The process, said to be of especial significance to Hyderabad, which accounts for about 85 percent of India's total production of castor seeds, comprises dehydration of castor oil with the local earth as a catalyst. The dehydrated castor oil is claimed to have better drying properties than linseed oil in paints, greater retention of color, and higher resistance to water.

Journal of Commerce, November 2, 1949, p. 21A.

WORLD PEANUT PRODUCTION ESTABLISHES NEW RECORD

World peanut production is expected to establish a new record in 1949, according to preliminary information available to the Office of Foreign Agricultural Relations. Total output is forecast at 11,460,000 short tons of unshelled nuts, representing an increase of 4 percent over the 1948 output of 11,000,000 and 20 percent over the prewar average of 9,550,000 tons. A sharp increase in India, the world's largest peanut producer, accounts for most of the expansion over 1948. Slightly larger harvests also are indicated for China, Indonesia, French West Africa, and Gambia. Sizeable decreases occurred in the United States, Nigeria, and Brazil.

Foreign Crops and Markets, Nov. 21, 1949, p.524.

PEANUTS: CONSUMPTION OF SHELLED PEANUTS ABOVE LAST YEAR

Shelled peanuts (total, all grades) used domestically during this season (beginning September 1) to October 31 totaled 159 million pounds, compared with 122 million pounds to October 31, 1948. Consumption of shelled edible peanuts totaled 98 million pounds, compared with 89 million pounds through October last year. Heavy crushings of shelled peanuts during October brought total crushings for this season so far to 60 million pounds, over 87 percent more than was crushed during the same period a year earlier. Production of crude peanut oil to October 31, 1949 totaled 27 million pounds, compared with 14 million to October 31, 1948 and the 1948-49 season (September 1, 1948-August 31, 1949) total of 144 million pounds.

Table 10.- Shelled peanuts (raw basis) reported used domestically in primary products

Reported use	Sept. 1 - Oct. 31		Season, Sept. 1 - Aug. 31	
	1949 4/	1948	1948-49	1947-48
	1,000	1,000	1,000	1,000
	pounds	pounds	pounds	pounds
Total all grades	159,657	122,008	710,596	604,265
Edible grades, total....	98,230	89,666	484,431	493,266
Peanut candy 1/.....	27,741	21,691	107,181	119,814
Salted peanuts	22,927	23,648	120,018	117,155
Peanut butter 2/.....	46,107	43,436	250,184	250,858
Other products.....	1,455	891	7,048	5,439
Crushed for oil, cake				
and meal.....	60,427	32,342	226,165	110,999

1/ Includes peanut butter made by manufacturers for own use in candy.

2/ Excludes peanut butter made by manufacturers for own use in candy.

3/ Includes ungraded or straight run peanuts.

4/ Preliminary.

From Peanuts Stocks and Processing, BAE, USDA, November 18, 1949.

U. S. VEGETABLE OILS USED IN CANADIAN MARGARINE

Virtually all oils used in Canada's new margarine industry are imported, mainly from the United States. This has created a new market outlet for products almost overnight. Starting in January of this year from almost no production at all, Canada's margarine output rose rapidly to an average of 6.75 million pounds a month for the March-September period. This rate of 81 million pounds a year requires about 65 million pounds of refined fats and oils. Of the 5,685 thousand pounds of various oils used in August, 60.5 percent was cottonseed oil, and 23.1 percent was soybean oil. The remaining 16.4 percent was coconut oil, peanut oil, marine oils, palm oils and oleo oil, in the order of importance. Except for a little marine oil used by one manufacturer in Newfoundland, all the raw materials are imported.

Foreign Crops and Markets, USDA, Office of Foreign Agricultural Relations, October 31, 1949, p. 443.

NEW PROCESSING PLANT FOR FATS AND OILS OPENED

Armour and Co., Chicago, has opened a new plant in McCook, near Chicago, for the processing of fats and oils. Designed to process up to 100 million pounds of fats and oils a year, the plant will produce principally pure acids, amides, nitriles, amines, and quaternary ammonium compounds. The largest portion of the fats and

LINTERS PRODUCTION HIGHEST OF RECORD FOR SEPTEMBER

1937. For the first two months of the current season, production totaled about 245,000 bales, up 10 percent compared with the same two months last year.

Consumption of linters in October totaled 143,000 bales. This compared with 141,000 bales in September and 115,000 in October last year. Linters consumption in the August-October period this season was at an annual rate of about 1,675,000 bales. This compares with 1,460,000 bales consumed in the 1948-49 season and a prewar (1935-39) average of 836,000 bales. Bleachers used 239,000 bales, or 57 percent of the total volume consumed in the first quarter of the current season, as compared with 183,000 bales, or 56 percent of the total in the corresponding period last season.

The trend in prices for Grades 1 through 4 was upward during August and most of September. Grade 2 linters averaged 9.69 cents per pound during the first quarter of the current season. This is 22 percent higher than the average of 7.92 cents for the same three months last season. Prices for chemical grade linters reached a postwar low early this season. At the two-cent level, prices for Grades 6 and 7 were 41 percent below a year ago and the lowest in about ten years.

Table 12.- Cotton linters: Production, consumption by industries, stocks, and prices, United States, for specified months

	: October	: September:	: August	: July	: October
	: 1949	: 1949	: 1949	: 1949	: 1948
	: 1,000	: 1,000	: 1,000	: 1,000	: 1,000
	: bales	: bales	: bales	: bales	: bales
Production 1/.....	4/	182.0	63.0	44.0	222.0
Consumption 2/.....	143.1	140.7	136.4	103.1	115.1
Quantity bleached.....	84.5	78.9	75.6	52.9	65.7
Other industries.....	58.6	61.9	60.8	50.3	49.4
Stocks 3/.....	4/	410.0	385.0	456.0	437.0
Prices	: Cents 5/:	: Cents	: Cents	: Cents	: Cents
No. 2 grade, per lb.....	10.29	10.10	8.67	7.82	7.90
No. 4 grade, per lb.....	6.25	6.16	5.16	4.34	4.93
No. 6 grade, per lb.....	1.92	1.92	1.92	2.04	2.90

1/ From Weekly Cotton Linters Review, PMA, Cotton Branch, USDA.

2/ From Facts for Industry, Cotton and Linters, Bureau of the Census.

3/ Total stocks in consumer establishments, public storage and warehouses, and oil mills. Stocks at end of the month. From Facts for Industry, Cotton Linters, Bureau of the Census.

4/ Not available.

5/ Preliminary.

DISSOLVING WOOD PULP PRICES REDUCED FROM 4 to 6 PERCENT

Effective October 1, 1949, prices of dissolving wood pulp used in rayon manufacture were reduced 4 to 6 percent by the largest producer. This is the second price reduction in 1949, the first being in June. Standard viscose grade was reduced to 7.50 cents from 7.95 cents; high tenacity viscose grade to 8.05 cents from 8.40 cents; and acetate and cupra grade to 8.55 cents from 8.90 cents per pound. The price of cotton linters remained unchanged at 8.00 cents a pound. Since cotton linters have a higher content of "alpha-cellulose" the type needed for rayon and also for acetate plastics, the September price of dissolving wood pulp actually created a differential of around 2.00 cents a pound in favor of cotton linters. New October pulp prices should bring wood pulp into a more competitive position with that of cotton linters.

Table 13.- Average annual price of purified linters and dissolving wood pulp, 1946-48 and monthly quotations July-October 1949

(Cents per pound)

	:	:	Wood pulp 2/					
	:	Purified	:	Standard	:	High-tenacity:	:	Acetate
	:	linters 1/	:	viscose	:	viscose	:	& cupra
	:		:	grade	:	grade	:	grade
1946.....	:	9.50	:	5.60	:	5.85	:	6.15
1947.....	:	16.30	:	7.03	:	7.44	:	8.04
1948.....	:	11.25	:	7.93	:	8.44	:	9.20
1949, July.....	:	8.00	:	7.95	:	8.40	:	8.90
1949, August.....	:	8.00	:	7.95	:	8.40	:	8.90
1949, September.....	:	8.00	:	7.95	:	8.40	:	8.90
1949, October.....	:	8.00	:	7.50	:	8.05	:	8.55
	:		:		:		:	

1/ Weighted averages, 1946-47. On 7 percent moisture basis, f.o.b. pulp plant. Average freight to users is 0.5 cents per pound. Prices supplied by a producer.

2/ Average of average monthly prices, 1946-47. Compiled from Rayon Organon and from letters to us from producers. Wood pulp prices are on a 10 percent moisture basis, f.o.b. domestic producing mill, full freight and 3 percent transportation tax allowed, December 1, 1947, on; freight equalized with that of Atlantic or Gulf port carrying lowest backhaul rate to destination plus 3 percent backhaul charges, prior to December 1.

WOOD PULP: WORLD PRODUCTION OF DISSOLVING WOOD PULP EXPECTED TO INCREASE

If estimates made by the Fourth Session of the Conference of FAO are realized, the largest percentage increases in wood pulp production from now until 1955 will be in dissolving grades. Consumption, which has risen from about 1.1 million tons in 1937 to nearly 1.4 million tons in 1948, is expected to go above 1.5 million tons in 1949. It should reach approximately 1.8 million tons in 1950 and exceed 2.2 million tons by 1955. Table 14 indicates that production will keep pace with demand.

The figures assume a substantial revival of production in Germany and Japan, the former being expected to produce two-thirds and the latter over half of its requirements of dissolving pulp. In Scandinavia the estimates show a large-scale diversion of sulphite capacity from paper grades to dissolving grades. As regards North America, account has been taken of contemplated increases in capacity which might not be implemented. In Germany, Italy and Japan, both production and consumption expanded enormously during the war in order to make good the loss of supplies of natural fibers, imports of which were cut off. Much of this capacity still exists, but it is particularly difficult to estimate how far it will be used. Moreover, the estimates of consumption in most major rayon producing countries are based on export estimates, which may prove to be misleading, that is, the sum of projected exports could exceed substantially the level of total world import demand.

Table 14.- Dissolving wood pulp: World production and consumption 1/

Item	Total	Europe	North America	Latin America	South and East Asia	Oceania
	1,000	1,000	1,000	1,000	1,000	1,000
	tons	tons	tons	tons	tons	tons
1937						
Production.....	1,058	540	441	--	77	2/
Consumption.....	1,119	441	198	6	474	2/
1947						
Production.....	1,246	573	634	6	33	2/
Consumption.....	1,218	551	595	28	44	2/
1948						
Production.....	1,422	689	683	6	44	2/
Consumption.....	1,367	661	612	33	61	2/
1949						
Maximum production...	1,543	832	661	6	44	2/
Minimum production...	1,472	777	645	6	44	2/
Maximum consumption...	1,593	794	650	39	110	2/
Minimum consumption...	1,422	749	524	39	110	2/
1950						
Maximum production...	1,879	1,080	705	6	88	2/
Minimum production...	1,863	1,080	689	6	88	2/
Maximum consumption...	1,818	909	700	44	165	2/
Minimum consumption...	1,615	855	551	44	165	2/
1955						
Maximum production...	2,392	1,279	1,008	17	88	2/
Minimum production...	2,293	1,279	909	17	88	2/
Maximum consumption...	2,287	1,256	788	72	165	6
Minimum consumption...	2,161	1,224	694	72	165	6

1/ Forward estimates are based upon varying hypothetical assumptions as to prevailing economic conditions in the various countries of the world.

2/ None, small, or not available.

From Food and Agricultural Organization of the United Nations, "Report of the Preparatory Conference on World Pulp Problems," June 1949, p. 17-18.

RAYON WOOD PULP SHIPMENTS IN SEPTEMBER RISE SHARPLY

Shipments of wood pulp for use in the manufacture of rayon rose sharply during September. Shipments to domestic users amounted to 29,038 tons as compared with 22,351 tons in August, and shipments for export were 1,458 tons against 1,104 during August. Deliveries to domestic producers failed to equal the 32,405 tons shipped in September 1948, but shipments for export were far above the 225 tons delivered a year ago.

According to trade sources, there are several reasons for expecting continued increases in pulp shipments. They are: (1) the strong tone of the market for rayon yarn and filament; (2) inventory needs for rayon producers, both domestic and foreign; (3) the comparatively limited capacity of Scandinavian pulp producers; and (4) decreasing competition from cotton linters.

September production of wood pulp for rayon amounted to 23,809 tons, somewhat below the 26,813 figure for August. This drop was described as seasonal, but the figure was far below that of 34,442 tons for September 1948. Market inventories of wood pulp for rayon declined from 24,501 tons in August to 17,553 in September, but remained far above the 7,729 tons held by producers in September 1948.

Journal of Commerce, Nov. 4, 1949, p. 10.

TEXTILES FROM STRAW CELLULOSE

Cellulose can be produced from straw, including rice straw, corn straw, bamboo cane, and other plants containing at least 30 percent cellulose, according to Swiss invention claims. The invention enables production in a continuous, automatic process in which the raw material need not be assorted beforehand—the ears, knots, and all other parts are used. It is said to give an output of 35 percent of refined cellulose. The dissolution of the cellulose takes place without pressure at less than 100° C. through the use of diluted lyes that do not destroy the vegetable matter. Finatra Trust Co., Zurich, is negotiating the license.

Textile World, October 1949, p. 254.

M I S C E L L A N E O U S P R O D U C T S

PRODUCTION OF SYNTHETIC DETERGENTS IN 1949 ESTIMATED AT ONE BILLION POUNDS

Industrial demand for synthetic detergents has boosted their production from the 1948 total of 700 million pounds to an estimated record output for 1949 of one billion pounds, Lawrence H. Flett, president of the American Institute of Chemists, stated. He predicted that within another ten years the annual output of soapless soaps will reach 3 billion pounds. Industrial uses for detergents include protecting cement from the effects of weather, cleaning automobile bodies so that paint will adhere evenly, processing foods and impregnating cloth wool dyes.

Journal of Commerce, Nov. 16, 1949, p. 8A.

